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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/911,569	07/23/2001	Pamela Hawley-Nelson	32-95D	8436

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EXAMINER	
DUNSTON, JENNIFER ANN	
ART UNIT	PAPER NUMBER
1636	

DATE MAILED: 10/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/911,569	HAWLEY-NELSON ET AL.	
	Examiner	Art Unit	
	Jennifer Dunston	1636	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 August 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-7,10-14,16-18,20-45,47-58,64-66,71 and 78-93* is/are pending in the application.

4a) Of the above claim(s) *10,11,24-26 and 45* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-7,12-14,16-18,20-23,27-44,47-58,64-66,71 and 78-93* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☒ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *5/10/2002*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Receipt of an amendment filed on 8/18/2004, in which claims 8, 9, 15, 19, 46, 59-63, 67-70, and 72-77 were cancelled and claims 78-93 were added, is acknowledged.

Election/Restrictions

Applicant's election with traverse of Group I (claims 1-41 and 48-63) in the reply filed on 8/18/2004 is acknowledged. The traversal is on the ground(s) that the compositions are linked generically, thus it would not represent an undue burden to the Patent Office to examine all of the claims of Groups I-IV. This is found persuasive in part because claims 16-18, 57 and 58 are drawn to the covalent bonding of a peptide or protein to a component of the composition, which is overlapping in scope with the invention of Group II. Further, Groups III and IV represent species with regard to the generic linking claim, claim 1. Thus, the restriction requirement between Groups I-IV is withdrawn.

Applicants request the withdrawal of the requirement for an election of species. Examiner has NOT made a species election requirement. Examiner has restricted Groups I and II to a single invention comprising a single named peptide or protein and a single named transfection agent. Applicant has elected herpes simplex VP22 protein and DOSPA as the elected invention.

The requirement is still deemed proper and is therefore made FINAL.

Because claims 1 and 6 are not allowed (see rejection under 35 USC § 102 below), examination has been restricted to compositions comprising a cationic lipid, which encompasses the elected polyvalent cation DOSPA. Since claim 12 is not allowed, examination is restricted to

DOSPA (claim 13). Therefore, claims 10 and 11 are withdrawn from consideration as being drawn to a non-elected invention.

Further, because claim 1 is not allowed, examination is restricted to a viral protein (claims 20 and 28), which is a transport protein (claim 27), specifically herpes virus VP22 protein (claim 31). Therefore, claims 24-26 are withdrawn from consideration as being drawn to a non-elected invention.

Because claim 55 is not allowed, examination is restricted to the trafficking sequence of claim 56 (based upon the election of VP22 protein).

Because claim 42 is not allowed, examination is restricted to the lipid of claim 43. Since claim 43 is not allowed, examination is restricted to the cationic lipid of claim 44 (based upon Applicants' election of DOSPA). Claim 45 is withdrawn from consideration as being drawn to a non-elected invention.

Because claim 66 is not allowed, examination is restricted to the cationic lipid of claim 66, specifically LIPOFECTAMINE, which is a mixture of DOSPA and DOPE (based upon Applicant's election of DOSPA).

In summary, claims 10, 11, 24-26 and 45 are withdrawn from consideration. An examination on the merits of claims 1-7, 12-14, 16-18, 20-23, 27-44, 47-58, 64-66, 71, and 78-93 follows.

Information Disclosure Statement

Receipt of an information disclosure statement, filed on 5/10/2002, is acknowledged. The signed and initialed PTO 1449 has been mailed with this action.

Oath/Declaration

The oath or declaration is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02.

The oath or declaration is defective because:
Non-initialed and/or non-dated alterations have been made to the oath or declaration. The alteration of the citizenship for Gulilat Gebeyehu has not been initialed. See 37 CFR 1.52(c).

Sequence Compliance

This application contains sequence disclosures that are encompassed by the definitions for nucleotide and/or amino acid sequences set forth in 37 CFR 1.821(a)(1) and (a)(2). However, this application fails to comply with the requirements of 37 CFR 1.821 through 1.825 for the reason(s) set forth below.

Two amino acid sequences are disclosed on page 26, line 27. Sequence identifiers were not provided for these two sequences. In accordance with 37 CFR 1.821(c), reference must be made to the sequence by use of the sequence identifier, preceded by "SEQ ID NO: " in the text of the description or claims, even if the sequence is also embedded in the text of the description or claims of the patent application.

In response to this office action, Applicant must comply with the sequence rules, 37 CFR 1.821 - 1.825. The nature of the non-compliance did not preclude an examination of the elected invention on the merits, the results of which are presented below.

Specification

The disclosure is objected to because of the following informalities: the description of figures 4A and 4B is unclear because the phrase "with transfection without peptide". The phrase appears to be referring to transfection with and without peptide in Figures 4B and 4A, respectively.

Appropriate correction is required.

Claim Objections

Claims 11, 13 and 14 are objected to because of the following informalities: the claims recite the abbreviations DOTMA, DOTAP, DMRIE, DDAB, DOSPA, DOSPER, DOGS, TMTPS, TMTOS, TMTLS, TMTMS, TMDOS, DOPE, and DPhPE. The abbreviations should be spelled out in the first appearance of the claims followed by the abbreviation in parentheses. Appropriate correction is required.

Claims 13, 20, 29, 31, 66 and 84 are objected to because of the following informalities: the claims read on a non-elected invention.

Double Patenting

A rejection based on double patenting of the "same invention" type finds its support in the language of 35 U.S.C. 101 which states that "whoever invents or discovers any new and useful process ... may obtain a patent therefor ..." (Emphasis added). Thus, the term "same invention," in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970).

A statutory type (35 U.S.C. 101) double patenting rejection can be overcome by canceling or amending the conflicting claims so they are no longer coextensive in scope. The filing of a terminal disclaimer cannot overcome a double patenting rejection based upon 35 U.S.C. 101.

Claims 1-7, 12-14, 16-18, 20-23, 27-44, 47-58, 64-66 and 71 are provisionally rejected under 35 U.S.C. 101 as claiming the same invention as that of claims 1-7, 12-14, 16-18, 20-23, 27-44, 47-58, 64-66 and 71 of copending Application No. 10/200,879. This is a provisional double patenting rejection since the conflicting claims have not in fact been patented. The rejected claims are identical in scope even though the wording between the claims is slightly different. Note, in the context of the claims, the recitation of "one or more peptides and/or proteins" is the same thing as "one or more peptides or proteins."

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington,* 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1, 2, 4, 6, 7, 12, 21-24, 48 and 49 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-34 of U.S. Patent No. 5,736,392 (hereafter '392). Although the conflicting claims are not identical, they are not patentably distinct from each other. Claims 1, 4, 6, 48 and 49 of the instant application are

generic to all that is recited in claims 1, 2, 4-34. Claim 2 is generic to all that is recited in claim 3 of the '392 patent. Claim 7 is generic to all that is recited in claims 12 and 13 of the '392 patent. Claims 12 is generic to all that is recited in claims 10 and 11 of the '392 patent. Claims 21-23 are generic to all that is recited in claims 14-16, respectively, of the '392 patent. Claim 24 is generic to all that is recited in claim 5 of the '392 patent. That is, claims 1-34 of U.S. Patent No. 5,736,392 fall entirely within the scope of claims 1, 2, 4, 6, 7, 12, 21-24, 48 and 49 or, in other words, claims 1, 2, 4, 6, 7, 12, 21-24, 48 and 49 are anticipated by claims 1-34 of U.S. Patent No. 5,736,392.

Claims 1, 6, 7, 12, 13, 16, 17, 38, 49, 50 and 55-58 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-19, 23, 30 and 48-89 of U.S. Patent No. 6,051,429 (hereafter '429). Although the conflicting claims are not identical, they are not patentably distinct from each other. Claims 1 and 6 of the instant application are generic to all that is recited in claim 16 of the '429 patent. Claims 7, 12, 13 and 38 are generic to all that is recited in claims 19, 17, 18, and 23, respectively, of the '429 patent. Claims 49 and 50 are generic to all that is recited in claims 16 and 19, respectively of the '429 patent. Claims 1, 16 and 17 are generic to all that is recited in claim 30. Claim 55 is generic to all that is recited in claims 1-15, 60-72 and 81-89 of the '492 patent. Further, claims 55-57 are generic to all that is recited in claims 48-59 and 73-80 of the '492 patent. Claim 58 is generic to all that is recited in claim 50 of the '492 patent. That is, claims 1-19, 23, 30 and 48-89 of U.S. Patent No. 6,051,429 fall entirely within the scope of claims 1, 6, 7, 12, 13, 16, 17, 38, 49, 50

and 55-58 or, in other words, claims 1, 6, 7, 12, 13, 16, 17, 38, 49, 50 and 55-58 are anticipated by claims 1-19, 23, 30 and 48-89 of U.S. Patent No. 6,051,429.

Claims 1, 6, 7, 12-14, 16-18, 20, 21-23, 27-30, 36, 42-44, 48-52, 55, 56 and 64-66 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 2, 5-23, 25 and 28-30 of U.S. Patent No. 6,376,248 (hereafter '248). Although the conflicting claims are not identical, they are not patentably distinct from each other. Claims 1, 20, 27-29 and 48 of the instant application are generic to all that is recited in claims 2, 3, 5-10, and 12-21 of the '248 patent. Claims 6, 7, 12, 14, 64, 65 and 66 are generic to all that is recited in claims 5, 6, 9, 11, 28, 29 and 30, respectively, of the '248 patent. Claim 13, as it is currently written, is generic to all that is recited in claim 10 of the '248 patent. Claims 16 and 42 are generic to all that is recited in claim 12 of the '248 patent. Claims 17, 43 and 44 are generic to all that is recited in claim 13 of the '248 patent. Claim 18 is generic to all that is recited in claim 14 of the '248 patent. Claims 21, 22 and 23 are generic to all that is recited in claims 15, 16 and 17, respectively, of the '248 patent. Claim 30 is generic to all that is recited in claim 18 of the '248 patent. Claim 36 is generic to all that is recited in claim 19 of the '248 patent. Claims 49 and 50 are generic to all that is recited in claims 20 and 21, respectively, of the '248 patent. Claims 51 and 52 are generic to all that is recited in claims 22 and 23respectively, of the '248 patent. Claims 55 and 56 are generic to all that is recited in claims 3 and 25 of the '248 patent. That is, claims 2, 5-23, 25 and 28-30 of U.S. Patent No. 6,376,248 fall entirely within the scope of claims 1, 6, 7, 12-14, 16-18, 20, 21-23, 27-30, 36, 42-44, 48-52, 55,

56 and 64-66 or, in other words, claims 1, 6, 7, 12-14, 16-18, 20, 21-23, 27-30, 36, 42-44, 48-52, 55, 56 and 64-66 are anticipated by claims 2, 5-23, 25 and 28-30 of U.S. Patent No. 6,376,248.

Claims 1, 2, 20, 28, 29 and 48 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 15, 41, 42 and 57 of U.S. Patent No. 6,020,202 (hereafter '202). Although the conflicting claims are not identical, they are not patentably distinct from each other. Claims 1, 20, 28, 29 and 48 of the instant application are generic to all that is recited in claims 15, 41 and 42 of the '202 patent. Claim 2 is generic to all that is recited in claim 57 of the '202 patent. That is, claims 15, 41, 42 and 57 of U.S. Patent No. 6,020,202 fall entirely within the scope of claims 1, 2, 20, 28, 29 and 48 or, in other words, claims 1, 2, 20, 28, 29 and 48 are anticipated by claims 15, 41, 42 and 57 of U.S. Patent No. 6,020,202.

Claims 1, 20, 28, 29 and 48 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 9, 10, 16 and 36 of U.S. Patent No. 5,578,475 (hereafter '475). Although the conflicting claims are not identical, they are not patentably distinct from each other. Claims 1, 20, 28, 29 and 48 of the instant application are generic to all that is recited in claims 9, 10, 16 and 36 of the '475 patent. That is, claims 9, 10, 16 and 36 of U.S. Patent No. 5,578,475 fall entirely within the scope of claims 1, 20, 28, 29 and

48 or, in other words, claims 1, 20, 28, 29 and 48 are anticipated by claims 9, 10, 16 and 36 of U.S. Patent No. 5,578,475.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 29, 32-35, 37, 49, 50, 66, 84 and 86 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 29 recites the limitation "said virus" in line 1. There is insufficient antecedent basis for this limitation in the claim. It would be remedial to amend the claim to recite "...said viral peptide or protein is from a virus..."

Claims 32-35, 37, 49 and 50 are vague and indefinite in that the metes and bounds of the phrase "capable of" are unclear. It is not clear if the claims are drawn to a latent property or a property that requires an additional agent for expression. It would be remedial to amend the claim language of claims 32 and 49 to distinctly recite the claimed properties using positive language.

Claim 37 is vague and indefinite in that the metes and bounds of the phrase "wherein said peptides or proteins comprise one or more amino acid derivatives or analogues" are unclear. It is unclear what constitutes an amino acid derivative or analogue in that the specification does not define how many changes can be made to the amino acid before the amino acid is no longer a

derivative or analog. It would be remedial to amend the claim language to clearly recite the structural features of the peptides or proteins.

Claim 66 contains the trademarks/trade names LIPOFECTAMINE, LIPOFECTIN, LIPOFECTACE, CELLFECTIN, MUTIFECTOR and TRANSFECTIN. Where a trademark or trade name is used in a claim as a limitation to identify or describe a particular material or product, the claim does not comply with the requirements of 35 U.S.C. 112, second paragraph. See *Ex parte Simpson*, 218 USPQ 1020 (Bd. App. 1982). The claim scope is uncertain since the trademark or trade name cannot be used properly to identify any particular material or product. A trademark or trade name is used to identify a source of goods, and not the goods themselves. Thus, a trademark or trade name does not identify or describe the goods associated with the trademark or trade name. In the present case, the trademark/trade name is used to identify/describe lipid compositions such as DOSPA:DOPE in a 3:1 mole ratio (LIPOFECTAMINE) and, accordingly, the identification/description is indefinite. Amending the claims to replace the trademarked terms with the corresponding chemical compositions would be remedial.

Claim 84 recites the limitation "polyvalent cationic lipids" in line 1. There is insufficient antecedent basis for this limitation in the claim. It would be remedial to amend the claim to depend from a claim that recites "polyvalent cationic lipids" or to amend the claim to recite "cationic lipids."

Claim 86 recites the limitation "polycationic lipids" in line 1. There is insufficient antecedent basis for this limitation in the claim. It would be remedial to amend the claim to recite "polyvalent cationic lipids."

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-7, 12-14, 20-23, 28-30, 32-35, 39-41, 48-51, 54-58, 64-66, 71, 78-85, 87 and 88 are rejected under 35 U.S.C. 102(b) as being anticipated by Hawley-Nelson et al (US Patent No. 5,736,392; see the entire reference).

Hawley-Nelson et al teach transfection compositions that read on claims 1, 4, 6, 21, 32-35, 48-50, 78 and 79. Hawley-Nelson et al teach compositions useful for transfecting eukaryotic cells comprising nucleic acid (DNA or RNA) complexed with peptides, proteins, or protein fragments, wherein the peptide is optionally covalently coupled to a DNA-binding group, and cationic lipids (e.g. Abstract; column 3, lines 4-11; column 5, lines 53-65).

Regarding claims 2, 3, 5, 7, 12-14, 20, 28, 29, 64-66, 84, 85, 87, 88, Hawley-Nelson et al teach a composition comprising two viral peptides (e.g. VSVG and K5), DNA, a polycationic lipid (DOSPA), and a neutral lipid (DOPE) (e.g. column 16, lines 25-60; column 17, Table 2; column 15, lines 30-35). Thus, Hawley-Nelson teach the use of viral peptides of viral fusogenic proteins, wherein the virus is influenza virus or vesicular stomatits virus (e.g. Example 5). Polycationic lipids include saturated and unsaturated alkyl and alicyclic ethers and esters of amines or amides or derivatives thereof (e.g. column 11, lines 29-43). Further, the compositions

comprising cationic lipids can further comprise neutral lipids such as lecithins, poshpotidylethanolamine, phosphatidylethanolamines, POPE, POPC, phosphatidylglycerol, phosphatidylglycerols, DOPG, DPPG, distearoylphosphatidlyglycerol, phosphatidlyserine, phostphatidylserines, dioleoylphosphatidylserine, dipalmitoylphosphatidylserine, diphosphatidylglycerols, fatty acid esters, glycerol esters, sphingolipids, cardolipin, cerebrosides, ceramides, cholesterol and 3βOH-sterols, and mixtures thereof (e.g. column 12, lines 25-48). Moreover, a kit can be defined as a set of articles or implements used for a specific purpose (e.g. *The American Heritage® Dictionary of the English Language, Fourth Edition, Copyright © 2000 by Houghton Mifflin Company*). Thus, Hawley-Nelson et al necessarily teach a kit comprising lipofectamine (DOSPA:DOPE) and viral peptides (e.g. Example 5).

Regarding claims 22 and 23, Hawley-Nelson et al teach a composition for transfection comprising a fusogenic peptide, nuclear-localization peptide or receptor-ligand peptide conjugated to a DNA-binding group, wherein the peptide is covalently conjugated to spermine, and a cationic lipid (e.g. column 3, lines 66-67; column 4, lines 1-35).

Regarding claim 30, Hawley-Nelson et al teach the use of DEAE-dextran as a delivery system for the transfection reagent (e.g. column 13, lines 16-30). Thus, Hawley-Nelson et al necessarily teach a composition comprising nucleic acid, peptide, transfection agent and DEAE-dextran.

Regarding claims 39-41, 71 and 80-83, Hawley-Nelson et al teach pharmaceutical preparations of the abovementioned compositions to deliver therapeutic genes, antisense or antigene nucleic acids, ribozymes or diagnostic nucleic acids (e.g. column 4, lines 42-67; column 5, lines 1-5). Thus, Hawley-Nelson et al teach a collection of items comprising a cationic lipid,

peptide and diagnostic nucleic acid. Further, the nucleic acids may comprise natural bases or non-natural bases (e.g. column 4, lines 64-66). Moreover, the nucleic acids may inhibit undesired enzymatic activity or activate desired enzymes (e.g. column 5, lines 1-5; e.g. column 6, lines 30-38).

Regarding claims 51 and 54-58, Hawley-Nelson et al teach methods for transfection comprising the steps of (1) forming a peptide-nucleic acid complex, (2) combining the peptide-nucleic acid complex with a cationic lipid to form a nucleic acid-lipid aggregate, and (3) contacting a cell with the aggregate (e.g. column 3, lines 4-26; column 15, lines 10-43). Further, this transfection method may employ any of the disclosed compositions (e.g. column 1, lines 13-17; and see above).

Claims 1, 4, 16, 21, 22, 24, 32-36, 39, 40, 42, 43, 48, 51, 54, 64, 78, 79, 82 and 83 are rejected under 35 U.S.C. 102(b) as being anticipated by Whittaker et al (WO 96/05218; see the entire reference).

Whittaker et al teach compositions for transfecting eukaryotic cells with DNA, RNA, modified oligonucleotides or labeled nucleic acids, wherein the composition comprises a peptide covalently attached to a lipid through a linker with the protein-lipid compound non-covalently complexed with nucleic acid (e.g. page 1, lines 25-35; page 3, lines 14-17). The lipids taught by Whittaker et al are neutral lipids (e.g. page 2, lines 1-5). Further, the peptide may include a nuclear localization sequence and/or a nucleic acid binding domain (e.g. paragraph bridging pages 3 and 4). The peptide may include a nucleic acid binding domain in tandem (i.e. a multimer) with another peptide sequence or on a bifurcating structure (e.g. paragraph bridging

pages 3 and 4). The peptide may consist of positively charged amino acids such as lysine, arginine, or ornithine through which the peptide associates with the nucleic acid (e.g. page 4, lines 25-30). Moreover, a kit can be defined as a set of articles or implements used for a specific purpose (e.g. *The American Heritage® Dictionary of the English Language, Fourth Edition, Copyright © 2000 by Houghton Mifflin Company*). Thus, Whittaker et al teach a kit comprising a peptide and lipid.

Whittaker et al teach methods of transfecting eukaryotic cells with the abovementioned compositions, comprising contacting a cell with the composition (e.g. page 3, lines 18-25; e.g. page 17, lines 30-35). Further, Whittaker et al teach a mixture of pGFP-N1 plasmid and K3ATL3 in 5% dextrose in water, which was injected into mice (e.g. page 40, lines 20-26). Thus, Whittaker et al necessarily teach the transfection composition further comprising a pharmaceutical carrier. Moreover, Whittaker et al teach the use of the disclosed compositions for gene therapy (e.g. page 5, lines 12-17). Thus, Whittaker et al necessarily teach the transfection composition comprising a therapeutic gene.

Claims 1-7, 12, 14, 20, 25, 28, 29, 32-35, 48-51, 54, 64, 65, 78 and 83 are rejected under 35 U.S.C. 102(b) as being anticipated by Kamata et al (Nucleic Acids Research, Vol. 22, No. 3, pages 536-57, 1994; see the entire reference).

Kamata et al teach a composition comprising the fusogenic E5 and K5 peptides derived from influenza virus, plasmid DNA, and Lipofectin (the mixture of DOPE and DOTMA) (e.g. page 536, paragraph bridging the columns; Figure 1). Further, Kamata et al apply the composition to COS-7 cells (e.g. page 536, paragraph bridging the columns). Moreover, a kit

can be defined as a set of articles or implements used for a specific purpose (e.g. *The American Heritage® Dictionary of the English Language, Fourth Edition, Copyright © 2000 by Houghton Mifflin Company*). Thus, Kamata et al necessarily teach a kit comprising a peptide and cationic lipid transfection agent.

Claims 1-3, 20, 25, 26, 28, 29, 32-35, 38, 48, 51, 54, 64, 78 and 83 are rejected under 35 U.S.C. 102(b) as being anticipated by Lapidot et al (Experimental Cell Research, Vol. 189, pages 241-246, 1990; see the entire reference).

Lapidot et al teach compositions and methods for transfecting cells comprising contacting a cell with a composition comprising liposomes, composed of phohsphatidylcholine and cholesterol, DNA and intact Sendai or influenza (e.g. Table 2). Further, Lapidot et al teach compositions and methods for transfecting cells comprising contacting a cell with a composition comprising phospholipid, DNA and reconstituted influenza-Sendai virus hybrids (e.g. page 242, Materials and Methods; page 245, right column, last paragraph). Moreover, a kit can be defined as a set of articles or implements used for a specific purpose (e.g. *The American Heritage® Dictionary of the English Language, Fourth Edition, Copyright © 2000 by Houghton Mifflin Company*). Thus, Lapidot et al necessarily teach a kit comprising a protein and a transfection agent. Moreover, the influenza HA mediates cell adhesion and membrane fusion (e.g. page 241, right column, last paragraph).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claim 86 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kamata et al (Nucleic Acids Research, Vol. 22, No. 3, pages 536-57, 1994; see the entire reference) in view of Haces et al (US Patent No. 5,674,908; see the entire reference).

The teachings of Kamata et al are described above and applied as before.

Kamata et al do not teach a composition comprising a polycationic ammonium lipid.

Haces et al disclose highly packed polycationic ammonium lipid compounds useful for making lipid aggregates for delivery of macromolecules into cells (e.g. Abstract; column 3, formula I). Further, Haces et al teach that the compounds are useful alone or in combination with other lipid aggregate-forming components such as DOSPA and DOPE (e.g. column 4, lines

51-59). Moreover, Haces et al teach that the compounds are superior intracellular delivery agents and are less toxic to the target cells (e.g. column 5, lines 17-20).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Kamata et al to include the polycationic ammonium lipid taught by Haces et al because Kamata et al teach it is within the ordinary skill in the art to make compositions comprising DOSPA and DOPE for the transfection of cells and because Haces et al teach the use of polycationic ammonium lipids with DOPSA or DOPE or alone for the transfection of cells.

One would have been motivated to make such a modification in order to receive the expected benefit of reduced toxicity and superior transfection efficiency as taught by Haces et al. Based upon the teachings of the cited references, the high skill of one of ordinary skill in the art, and absent any evidence to the contrary, there would have been a reasonable expectation of success to result in the claimed invention.

Claim 47 is rejected under 35 U.S.C. 103(a) as being unpatentable over Whittaker et al WO 96/05218; see the entire reference) in view of Lapidot et al (Experimental Cell Research, Vol. 189, pages 241-246, 1990; see the entire reference).

The teachings of Whittaker et al are described above and applied as before.

Whittaker et al do not teach the addition of receptor-ligand protein to this composition.

Lapidot et al teach compositions for transfecting cells comprising phospholipid, DNA and reconstituted influenza-Sendai virus hybrids (e.g. page 242, Materials and Methods; page 245, right column, last paragraph). Influenza HA mediates cell adhesion and membrane fusion,

and thus it is a receptor-ligand protein (e.g. page 241, right column, last paragraph). Further, Lapidot et al teach that the influenza glycoproteins increase the efficiency of transfection (e.g. page 245, right column, last paragraph; Table 4).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Whittaker et al to include the receptor-ligand protein taught by Lapidot et al because Whittaker et al teach it is within the ordinary skill in the art to use lipids for transfection of cells and Lapidot teach the addition of influenza glycoproteins to lipids used for transfection.

One would have been motivated to make such a modification in order to receive the expected benefit of increased transfection efficiency as taught by Lapidot et al. Based upon the teachings of the cited references, the high skill of one of ordinary skill in the art, and absent any evidence to the contrary, there would have been a reasonable expectation of success to result in the claimed invention.

Claims 31, 56 and 89-93 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hawley-Nelson et al (US Patent No. 5,736,392; see the entire reference) in view of O'Hare et al (WO 97/05265; see the entire reference).

The teachings of Hawley-Nelson et al are described above and applied as before.

Hawley-Nelson et al do not teach the herpes simplex VP22 protein or fragments thereof.

O'Hare et al teach methods of transfecting a population of cells by contacting cells with a composition comprising a lipid vesicle, nucleic acid and a transport protein (e.g. page 5, lines 18-24; page 6, lines 28-34; page 18, lines). Further, O'Hare et al teach the use of the herpes simplex

VP22 protein, or fragments thereof (e.g. page 4, lines 18-33). Moreover, O'Hare et al demonstrate the rapid and efficient uptake of VP22 protein from the cell culture medium (e.g. page 15, lines 15-28).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Hawley-Nelson et al to include the VP22 protein taught by O'Hare et al because Hawley-Nelson et al teach it is within the ordinary skill in the art to use transfection compositions comprising nucleic acid, DOSPA, a neutral lipid and a peptide and O'Hare et al teach the addition of VP22 protein to a liposome for transfection of cells.

One would have been motivated to make such a modification in order to receive the expected benefit of efficient and rapid transfer of the composition as taught by O'Hare et al. Based upon the teachings of the cited references, the high skill of one of ordinary skill in the art, and absent any evidence to the contrary, there would have been a reasonable expectation of success to result in the claimed invention.

Conclusion

No claims are allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer Dunston whose telephone number is 571-272-2916. The examiner can normally be reached on M-F, 9 am to 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Remy Yucel can be reached on 571-272-0781. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to (571) 272-0547.

Patent applicants with problems or questions regarding electronic images that can be viewed in the Patent Application Information Retrieval system (PAIR, http://pair-direct.uspto.gov) can now contact the USPTO's Patent Electronic Business Center (Patent EBC) for assistance. Representatives are available to answer your questions daily from 6 am to midnight (EST). The toll free number is (866) 217-9197. When calling please have your application serial or patent number, the type of document you are having an image problem with, the number of pages and the specific nature of the problem. The Patent Electronic Business Center will notify applicants of the resolution of the problem within 5-7 business days. Applicants can also check PAIR to confirm that the problem has been corrected. The USPTO's Patent Electronic Business Center is a complete service center supporting all patent business on the Internet. The USPTO's PAIR system provides Internet-based access to patent application status and history information. It also enables applicants to view the scanned images of their own application file folder(s) as well as general patent information available to the public.

For all other customer support, please call the USPTO Call Center (UCC) at 800-786-9199.

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TERRY MCKELVEY
PRIMARY EXAMINER